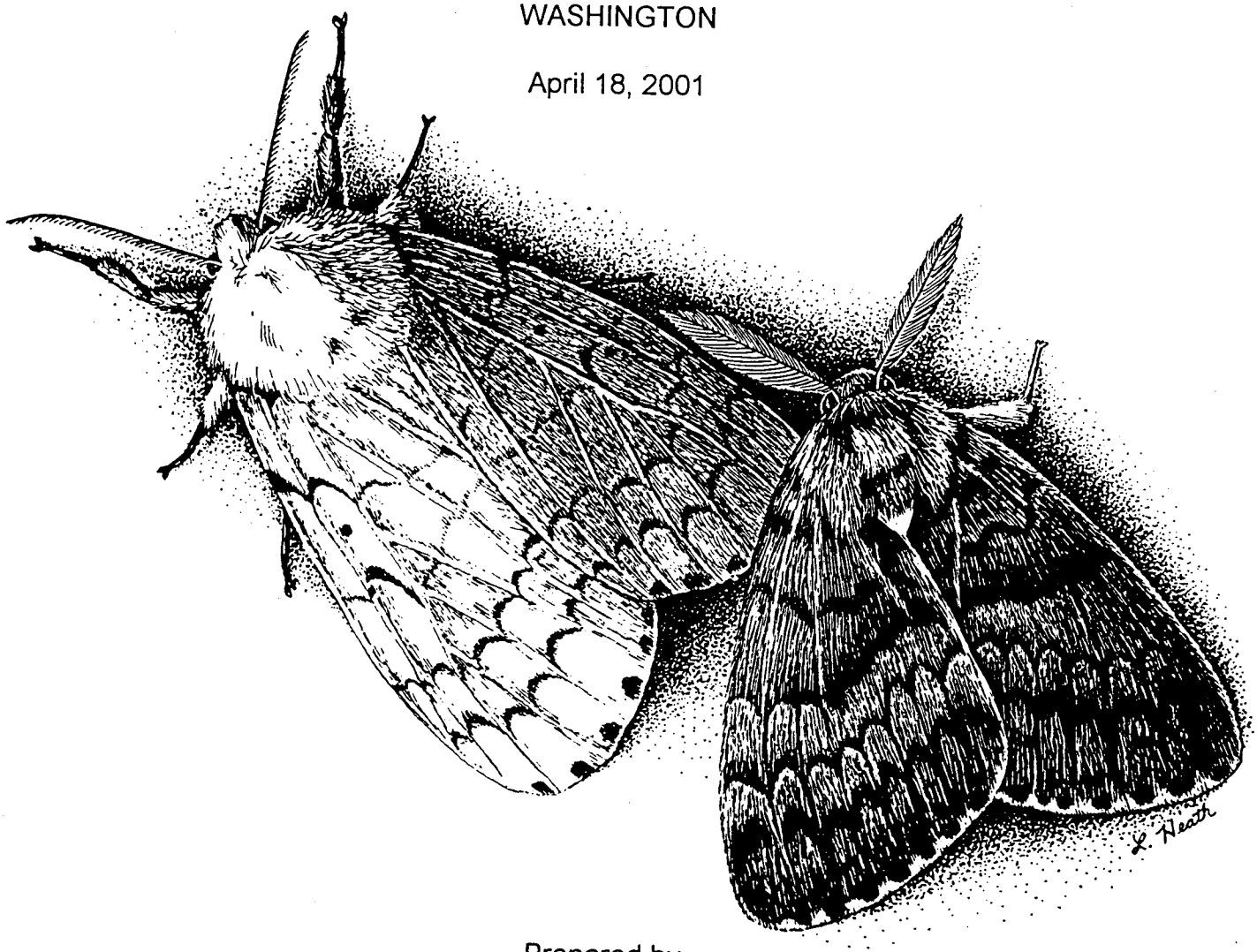
**Final**

# ENVIRONMENTAL ASSESSMENT

COOPERATIVE GYPSY MOTH ERADICATION PROJECT
LEWIS COUNTY
WASHINGTON

April 18, 2001



Prepared by
Washington State Department of Agriculture
Laboratory Services Division

In cooperation with
United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine


Published for the 2001 Gypsy Moth Eradication Season
Washington State Department of Agriculture
Laboratory Services Division
3939 Cleveland Ave. SE
Olympia WA 98501
1-800 443-6684

## TABLE OF CONTENTS

# I. PURPOSE AND NEED FOR ACTION

## A. Decisions to be Made and Scope of Analysis

### 1. Introduction

The Washington State Department of Agriculture (WSDA), in cooperation with the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS), is proposing an eradication program with the goal of eliminating an isolated infestation of the non-native gypsy moth, Lymantria dispar, (Linnaeus), in Lewis County, Washington in the spring of 2001.

### 2. Environmental Analysis and Documentation

In 1995, the USDA Forest Service and APHIS prepared a final environmental impact statement, "Gypsy Moth Management in the United States: a cooperative approach", (hereinafter referred to as FEIS), which described and analyzed methods of gypsy moth control available for use in USDA cooperative programs. WSDA is proposing nothing that was not analyzed in the 1995 FEIS. Therefore, no new environmental impact statement programmatic analysis need be conducted.

This Environmental Assessment (EA) is "tiered" to the FEIS in accordance with the Council on Environmental Quality regulations for implementing the National Environmental Policy Act of 1969 (NEPA) (40 CFR 1502.20 and 40 CFR 1508.28). This EA provides the basic background information necessary for the site-specific analysis of the potential environmental effects of WSDA's proposed 2001 Cooperative Gypsy Moth Eradication Project required by NEPA and contained herein. The FEIS and this site-specific EA jointly constitute the environmental analysis and documentation required under NEPA.

Copies of the FEIS and the EA are available for review at:

Washington State Library
Capitol Campus
16th Ave. & Water St.
Olympia, WA 98504

and

USDA, APHIS, PPQ
APHIS Library, 1st floor
4700 River Road
Riverdale, MD 20737

and

USDA, APHIS, PPQ
22000 Marine View Drive S., Suite 201
Des Moines, WA 98198

Additional environmental analysis and documentation has been prepared to satisfy Washington State requirements under Chapter 43.21 (c) of the Revised Code of Washington (State Environmental Policy Act or SEPA), and Chapter 197-11 of the Washington Administrative Code (SEPA rules).

Copies of the SEPA documentation are available for review at:

Washington State Library
Capitol Campus
16th Ave. & Water St.
Olympia, WA

**3. History and Scope of Project**

Since its accidental release in the United States in 1869, the European strain of gypsy moth has spread throughout New England and areas to the north, south and west and has become established in all or parts of 18 states, the District of Columbia, and parts of Canada. It continues to spread to uninfested areas. The gypsy moth has caused dramatic economic, social, and ecological impacts in the generally infested areas (USDA, 1995, vol. II, chapter 1, p. 4).

The European strain of the gypsy moth has been found every year in Washington State since 1974 with the exceptions of 1976 and 1977. Gypsy moth is usually introduced to Washington State by people visiting or relocating from the generally infested area of eastern North America. For more than 25 years, WSDA has successfully detected and eradicated new introductions of gypsy moth.

In 1991, the Asian strain of the gypsy moth was found for the first time in Oregon, Washington, and in British Columbia, Canada. Eradication projects conducted in 1992 successfully eliminated the insect from those areas. WSDA has found and treated introductions of the Asian strain of the gypsy moth in 1991-92, 1994-95, 1995-96, 1996-97, 1997-98 and 1999-2000. These eradication projects appear to have been successful. The Asian strain poses a far greater risk of rapid spread than the European. Unlike females of the European strain, females of the Asian strain may fly and deposit an egg mass miles from where they fed as caterpillars. The Asian strain also poses a greater risk of damage because it feeds on a greater variety of plants (USDA, 1995, vol. II, chapter 1, p. 4).

In 2001, WSDA is proposing to treat one isolated site that has a reproducing population of the European strain of the gypsy moth. This site is located in Lewis County.

For more information on how the different strains/populations of the gypsy moth are to be treated please see USDA, 1995, vol. II, chapter 1, pp. 9-11.

### 4. Decisions to be Made

The first decision to be made is whether or not to have a gypsy moth control project (the absence of a control project is a no action alternative). The second decision to be made is whether or not tiering this environmental assessment to the USDA 1995 FEIS is appropriate. The third decision to be made is whether to proceed with the preferred alternative as described in the FEIS.

## B. Proposed Action

Strategies described in the FEIS depend upon the infestation status of the area: generally infested, transition, or uninfested. The three strategies of suppression, eradication, and slow the spread -- or their absence -- make up the six alternatives described in the FEIS. The sixth alternative is the preferred alternative presented in the FEIS. The sixth alternative is comprised of all three strategies. The strategy utilized is determined by infestation status. Because of Washington State's infestation status, the strategy implemented will be eradication.

For a more detailed description of the alternatives described in the FEIS, please refer to an excerpt from the FEIS in Appendix C of this EA.

Treatments available for eradication projects include: (the biological insecticides) Bacillus thuringiensis var. kurstaki (B.t.k.) and the gypsy moth nucleopolyhedrosis virus (Gypchek); a chemical insecticide (diflubenzuron); and treatments employing mass trapping, mating disruption, and sterile insect release techniques. A detailed description of these treatments is available in Appendix A of the FEIS.

## C. Need For Action

### 1. Economic, Social, and Ecological Impacts

In order to avoid undesirable economic, social, and ecological impacts to individuals, communities, and businesses in Washington State, WSDA in cooperation with USDA APHIS, is proposing to eradicate an isolated infestation of the gypsy moth in Lewis County in the town of **Vader**.

Gypsy moth trapping (which employs pheromone-baited traps), egg mass surveys and/or inspections have detected a gypsy moth infestation in the aforementioned area. The gypsy moth is able to survive and reproduce in Washington State, as evidenced by past isolated infestations. The current infestation could, if left unchecked, spread across large areas.

Trees in forests and orchards, and residential and municipal shade trees and landscape plantings would be damaged and killed. Recreational and aesthetic values associated with trees and forested land would be diminished (USDA, 1995, vol. II, chapter 2, p. 29). Species composition of the vegetation on forested land could change, affecting the quantity and variety of food available for wildlife (USDA, 1995, vol. II, chapter 2, p. 23).

Water quality could be adversely affected in a number of ways including: 1) increased siltation from rapid runoff of rainfall from defoliated areas; 2) increases in water temperature as it flows through areas made shadeless; and 3) nutrient overloading from the deposition of large quantities of caterpillar droppings (USDA, 1995, vol. II, chapter 2, pp. 24-25).

The pesticide load in the environment would likely increase in quantity, variety, and net detrimental environmental impact as home and business owners take action in response to ever-increasing numbers of gypsy moth caterpillars, the damage they cause, and the nuisance they represent (USDA, 1995, vol. II, chapter 4, p. 76).

Human health effects associated with the presence of large numbers of gypsy moth caterpillars have been reported, including rashes and welts typical of allergic reactions, and respiratory complaints. These effects have been attributed to the irritating nature of the bristles found on the caterpillars. In some instances the reactions have been severe enough to require medical attention (USDA, 1995, vol. III, chapter 3, pp. 2-3), (Allen et, al., 1991), (Tuthill, et al., 1984), (Aber, et al., 1982), (Beaucher and Farnham, 1982), (Shama, et al., 1982).

Agricultural, horticultural, and forestry enterprises are dependent upon markets beyond the borders of Washington State. Washington must be able to comply with the plant pest and disease regulations of the Federal government, other states, and international markets. The establishment and spread of the gypsy moth in Washington State would result in the imposition of quarantines (USDA, 1995, vol. II, chapter 2, p. 29). The levels of production and value of plant products would likely be adversely affected.

## 2. Project Goals and Objectives

The WSDA, in cooperation with USDA-APHIS and other appropriate Federal, State and local agencies, proposes to take action to eradicate an isolated infestation of gypsy moths in Lewis County in the town of Vader. The action will be designed to give the project the best chance for achieving the goal of eradicating the gypsy moth infestation while minimizing risks to human health as well as minimizing detrimental environmental consequences. This action will be taken in order to prevent the establishment and spread of this pest insect and thereby avoid the adverse economic, social, and ecological effects associated with large-scale gypsy moth infestations.

## D. Authorizing Laws and/or Policies

### 1. State Authorizing Laws

WSDA has authority under Chapter 17.24 of the Revised Code of Washington, Insect Pests and Plant Diseases, to eradicate or control insect pests that may endanger the agricultural and horticultural industries in the state of Washington.

### 2. Federal Authorizing Laws

The USDA-APHIS has broad discretionary authority to prevent the establishment or spread of plant pests. See 1995 FEIS, volume 2, chapter 1, pages 8 and 9, "Statutory Authorities", for more information.

### 3. Environmental Laws and Other Regulations

Many environmental laws, authorities and Executive Orders of the President influence how actions to manage pests, including the gypsy moth, are implemented at the site-specific level. Such laws include the National Environmental Policy Act; Washington State Environmental Policy Act; Federal Insecticide, Fungicide, and Rodenticide Act; and the Endangered Species Act. See 1995 FEIS, volume 2, chapter 1, pages 8 and 9, "Statutory Authorities", for more information.

## II. PUBLIC INVOLVEMENT AND ISSUES

## A. Public Notification and Involvement

In the summer of 2000 initial contact was made with residents in what would later become the proposed treatment zone in conjunction with searching the area for gypsy moth egg masses.

On December 15, 2000 a press release was sent to media serving the Vader area, announcing that a formal proposal had been made to treat 29 acres in Vader in the spring of 2001 for an infestation of the European gypsy moth, and informing them of the upcoming opportunity to review and comment on both the SEPA Checklist and NEPA Draft EA.

On January 22, 2001 a letter was sent to 22 residents in or adjacent to the proposed gypsy moth treatment site in Vader. The letter explained 1) the nature of the gypsy moth infestation detected last summer, 2) that a formal proposal had been made to treat a 29-acre site to eradicate the infestation, 3) inviting them to an open house at the Vader Elementary School cafeteria on February 8, 2001 where they would be able to review material and ask questions and 4) informing them of the upcoming opportunity to review and comment on both the SEPA Checklist and NEPA Draft EA. Attached to

the letter was a gypsy moth fact sheet, map of the proposed treatment zone in Vader, and the December 15, 2000 press release.

On February 2, 2001 a press release was sent to the media announcing that a gypsy moth open house would be held on February 8, 2001 from 6 p.m. to 8 p.m. in the Vader Elementary School cafeteria.

In early February a legal notice appeared in newspapers in the local area, announcing the availability of a State Environmental Policy Act (SEPA) checklist for a 30-day-public-review-and-comment period.

On February 8, 2001 a widely publicized gypsy moth open house was held in the Vader Elementary School cafeteria.

In early March 2001 a legal notice appeared in newspapers in the local area, announcing the availability of the Draft National Environmental Policy Act (NEPA) Environmental Assessment (EA) for a 30-day-public-review-and-comment period.

Publication notification and involvement also included: 1) Answers to calls made to the toll-free hotline (1-800-443-6684). 2) Special calls to stakeholders (Vader City Council members, Lewis County commissioners, 18th Legislative District legislators, and others), keeping them up to date on gypsy moth program activities and events. 3) Special talk before the Vader City Council on January 17, giving details of the infestation, proposed treatment, and open house on February 8th.

### B. Issues and Concerns

Concerns were raised about the proposed treatments, their effects on human health and on non-target organisms. Those issues raised are addressed in this EA and in the FEIS to which this EA is "tiered".

## III. AFFECTED ENVIRONMENT

### A. 2001 SITE DESCRIPTIONS (see Appendix B for maps)

Vader (Winlock, WA 7.5' quadrangle, S29 T11N R2W)

- Lewis County, Washington
- Approximately 29 acres
- Zoning: R-2 Single Family Attached
  C Commercial
- Approximately 10 properties in the proposed treatment area.

- Proposed Boundaries:
  The site is to the northwest of the town of Vader. Annonen Rd. runs north/south through the proposed treatment zone. State Route 506 runs east/west one property to the south of the proposed treatment zone. McMurphy Creek and Olequa Creek meet near the western edge of the proposed treatment zone.

- Vegetation
  The proposed treatment area is a mix of deciduous and coniferous trees growing in and around residential properties and pastureland. Canopy coverage varies and averages less than 25%, tree height also varies.

- Critical/Sensitive Areas: Wetlands
  Fish & Wildlife Habitats
  Slope over 30%
  Conservancy Shorelines
  Environmental Designation

- Catch History
  76 European gypsy moths were caught in this area during the 2000 summer survey.

- Alternate Life Stages
  6 European gypsy moth Egg mass were found in this area in the late summer of 2000.

## B. Threatened, Endangered, and Sensitive Species

As required by the Endangered Species Act of 1973, the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Washington State Department of Fish and Wildlife (WDFW) and the Washington State Department of Natural Resources (DNR) have been consulted. These agencies provided maps and other data intended to aide in the identification of habitats of concern and the presence of listed, proposed, candidate, threatened or endangered species. See Appendix G.

The USFWS has reviewed this area for the presence of threatened or endangered species and listed the Proposed species Coastal Cutthroat Trout as "may occur in the vicinity of the Project." USFWS has been notified concerning the above species. WSDA will not engage in any activity that would constitute harassment of Coastal Cutthroat Trout. See Appendix G.

The USFWS also listed wintering bald eagles as "may occur in the vicinity of the project" from October 31 through March 31. WSDA has determined that wintering bald eagles will not be adversely effected by this project which is conducted from late April through June. See Appendix G.

The NMFS has listed the Lower Columbia River Steelhead, Lower Columbia River Chinook and Columbia River Chum as threatened in this area. The Lower Columbia River/SW Washington Coho is a Candidate for listing in this area. NMFS has been notified concerning the above species. WSDA will not engage in any activity that would constitute harassment of these named salmonid species.

Information provided by WDFW Priority Habitats and Species Program did not identify any threatened or endangered species on this site, however, Coho Salmon, Searun Cutthroat and Winter Steelhead were listed as occurring in Olequa Creek. WDFW also listed a number of Osprey nesting sites located over one mile outside the area.

A retrieval of information from the WDFW butterfly database did not name any threatened, endangered or sensitive species on this site, however, a record of a state candidate species, the Whulge or Taylor's checkerspot (*Euphydryas editha taylori*), was found approximately 5 miles from the proposed project. After consultation and conducting a site visit WDFW stated that this site "is unlikely to support Whulge checkerspots" and that "there is a very low probability that the proposed 2001 gypsy moth eradication effort will effect populations of this butterfly." WSDA concurs with the determination that the gypsy moth Eradication Program is unlikely to effect populations of the Whulge checkerspot. See Appendix G.

The DNR Washington Natural Heritage Program reviewed their Natural Heritage database. The DNR found no records for rare plants or high quality ecosystems in the vicinity of this project. See Appendix G.

### C. Other Environmental Consultation

The Washington State Department of Ecology is reviewing a request by WSDA for the temporary modification of the state surface water quality standards for the control of gypsy moth effecting McMurphy Creek and Olequa Creek at the Vader site.

## IV. TREATMENT ALTERNATIVES

### A. Treatment Alternatives

WSDA is proposing to conduct an Integrated Pest Management (IPM) program to eradicate gypsy moth in Washington State. Integrated Pest Management involves selecting those options and techniques that give the best chance of meeting the project goal of eradication. The FEIS contains a range of alternatives from which WSDA has selected an IPM strategy. The treatment alternatives detailed in the FEIS include:

1. Bacillus thuringiensis var. kurstaki (B.t.k.)
2. Diflubenzuron
3. Gypchek
4. Mass trapping
5. Mating disruption
6. Sterile release

## B. Preferred Treatment Alternative

The WSDA/USDA-APHIS gypsy moth eradication project IPM strategy proposed for 2001 includes the ground application of the biological insecticide (B.t.k.) Foray 48B (EPA Reg. No. 73049-46). This insecticide may be mixed with the spreader-sticker Plyac. Treatments will be followed by delimiting trapping, inspections for egg masses, and removal of egg masses where found. It is felt that this IPM strategy will give the project the best chance for achieving the goal of eradicating the gypsy moth infestation while minimizing risks to human health as well as minimizing detrimental environmental consequences. Details of the proposed ground application follow:

Ground Application:

The proposed action would involve three applications of Bacillus thuringiensis var. kurstaki (B.t.k.) with ground-based equipment at a rate of 24 Billion International Units (BIU) per acre (one half gallon of formulation per acre) to all foliage within the designated treatment area at Vader. The applications will be made 7-14 days apart and will occur during the period between April 1 and June 30, 2001. Provisions will be made for the possibility of a fourth ground application of B.t.k. if substantial rainfall occurs too soon following the completion of an application. Exact timing of the applications will be dependent on development of gypsy moth larvae and/or foliage as determined by WSDA.

If used, the spreader-sticker (Plyac) will be utilized at 4 ounces per 100 gallons of tank mix. Mixing the formulation with adjuvants for gypsy moth eradication projects has been common practice (USDA, 1995, vol. II, A-4).

Applications would be conducted in accordance with all applicable federal, state, and local laws and regulations, and would adhere to the Standard Operating Procedures developed by WSDA for this project. See Appendix F.

Follow up:

Trapping of male gypsy moths in the summer of 2001, employing pheromone-baited traps will follow up the applications. This will contribute to the success of the eradication project by delimiting the location of any residual populations of gypsy moths and aiding in the evaluation of the project.

In the event of multiple male moth catches in the treatment area, egg mass inspections would be performed in the fall of 2001 to aid in determining if re-treatment actions should be considered in order to achieve the project goal of eradicating this gypsy moth infestation.

## C. Treatment Alternatives Not Selected

The remaining treatment alternatives available for this proposed eradication project, as outlined in the FEIS, were not selected due to lack of availability, unproven efficacy, or environmental/biological concerns (USDA, 1995, vol. II, pp. A3-10).

# V. ENVIRONMENTAL CONSEQUENCES

## A. Human Health and Safety

### 1. Bacillus thuringiensis var. (kurstaki) (B.t.k.)

The use of B.t.k. for the eradication of isolated gypsy moth infestations is expected to have no adverse impact on human health or the environment. Various strains of Bacillus thuringiensis (B.t.) are a naturally occurring bacterial component of soils worldwide. Modern aqueous formulations of B.t.k. used in gypsy moth control projects contain no organic solvents and have an excellent safety record associated with their use in gypsy moth suppression and eradication projects. An exemption from the requirement of a tolerance has been established for residues of B.t.k. in or on all raw agricultural commodities. This exemption stipulates that manufacturers of B.t.k. test each lot for pathogenicity and vertebrate toxicity. Specimen product labels and a Material Safety Data Sheet (MSDS) for Foray 48B (EPA Reg. No. 73049-46), the B.t.k. formulation proposed for use in this project, can be found in Appendix E.

A detailed discussion of the human health effects of B.t.k. may be found in the 1995 FEIS vol. II, chapter 4, pp. 13-17, and in vol. III, chapter 4.

Due to advances in scientific knowledge, the law requires that pesticides which were first registered before November 1, 1984 be reregistered to ensure that they meet today's more stringent standards. In March of 1998 the United States Environmental Protection Agency came out with a Reregistration Eligibility Decision (EPA, 1998) in which they concluded:

> Based on the reviews of the generic data for the active ingredient *Bacillus thuringiensis*, the Agency has sufficient information on the health effects of *Bacillus thuringiensis* and on its potential for causing adverse effects in fish and wildlife and the environment. The Agency has determined that *Bacillus thuringiensis* products, manufactured, labeled and used as specified in this Reregistration Eligibility Decision, will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, the Agency concludes that products containing *Bacillus thuringiensis* for all uses are eligible for reregistration (EPA, 1998).

In the spring of 1999, Foray 48B was applied by aircraft to 52 square miles of Southern Vancouver Island to combat an infestation of European gypsy moth. Approximately

80,000 residents lived in the spray zones. The Capital Health Region coordinated a human health study of possible short-term health effects. The resulting report (Capital Health Region, 1999) concluded:

> The results of this project did not show a relationship between aerial spraying of Foray 48B and short-term human health effects. Although some people self-reported health problems that they attributed to the spray program, the research and surveillance methods used in this project did not detect any change in health status that could be linked to the spray program. Our results showed that many of the health complaints people reported during the spray were as common in people before the spray as they were shortly after the spray. This conclusion is consistent with those of previous studies of the possible health effects of Btk- based pesticide spray programs (Capital Health Region, 1999).

Exposure to B.t.k. spray resulting from its use as proposed in this gypsy moth eradication project is unlikely to cause significant human health effects. However, it is good practice to minimize exposure to any insecticide. One of the conclusions reached in the Oregon study by Green, et al.(1990), was that, "the level of risk for B.t.k. and other existing or future microbial pesticides in immunocompromised hosts deserves further study."

In addressing the issue of exposure to immunocompromised individuals and the general public to B.t.k., the following recommendations were made by the Washington State Department of Health in February, 2001 (Appendix D).

> The Washington State Department of Health (DOH) and the Lewis County Public Health Department recommend that people in the area to be sprayed minimize exposure by doing the following:
>
> 1. Stay indoors for at least 30 minutes after the spraying to allow droplets to settle.
>
> 2. Wait until the spray has dried before letting skin touch the treated leaves and bushes.
>
> 3. Wash skin with soap and water if you come in contact with the spray.
>
> 4. People in the sprayed area can sign up with the Department of Agriculture (800-443-6684) to be notified the day before spraying. (WSDOH, 2001, see Appendix D)

2. Plyac

Plyac may be used as an adjuvant with the insecticide utilized in this proposed eradication program. Plyac is a non-ionic spreader-sticker which acts as an adjuvant

when mixed with insecticides. Plyac is not an eye or primary skin irritant per the Federal Hazardous Substances Labeling Act. In the unlikely event that overexposure were to occur, local irritation might be possible, especially in sensitive individuals. Systemic toxic effects are unlikely. See Appendix E for Label and MSDS.

3. General Precautions

The WSDA will take the following additional steps to assist the public in avoiding or reducing exposure to the spray material:

1. The Pesticide Sensitive Individuals database, maintained by the Pesticide Management Division of the WSDA, will be checked for people living in or near the proposed treatment area who require advance notification.

2. The WSDA will offer a toll-free telephone line updated daily with information regarding scheduled treatment days.

3. The WSDA will provide notification calls to any resident in the proposed treatment area requesting them.

4. WSDA on-site spray block monitors will notify residents before the actual application to their property.

5. WSDA on-site spray block monitors will notify bicyclists, joggers and other pedestrians that they are approaching the treatment area.

6. Information will be provided to residents of the treatment area about how to avoid or reduce exposure to the spray material.

## B. Non-Target Organisms

1. Animals

Bacillus thuringiensis var. (kurstaki) (B.t.k.)

A detailed discussion of the ecological effects of B.t.k. on non-target organisms may be found in the 1995 FEIS vol. II, chapter 4, pp. 52-55, and in vol. IV, chapter 5, pp. 5-10.

As used in gypsy moth eradication projects, B.t.k. has not been shown to adversely affect fish, birds, mammals, or most non-target insects, including honey bees (USDA, 1995, vol. II, chapter 4, pp. 54-55). It is expected that B.t.k. may kill other lepidopteran larvae (leaf-eating caterpillars) if they are present in project areas when treatments occur. In turn, animals dependent on caterpillars as food theoretically may be affected. However, reductions in native caterpillar populations are expected to be temporary due to the brief residual effectiveness of B.t.k. deposits on foliage (4 to 10 days), the high

reproductive capacity of most lepidoptera, and recolonization from adjacent untreated areas (USDA, 1995, vol. II, chapter 4, pp. 54-55). The small size of the proposed treatment areas should aid in the recolonization process.

A study conducted in Oregon in connection with gypsy moth control programs in 1986 and 1987 found reduced numbers of caterpillars immediately following B.t.k. treatments and reduced species diversity. This study also found that recovery in numbers of non-target caterpillars began the same season, but that recovery of species diversity lagged behind (Miller, 1990).

A recent study has shown that B.t.k. could interfere with the biological control of the noxious weed tansy ragwort by cinnabar moth larvae if applied to areas where the weed occurs when late-instar larvae are active (James, et al., 1993). However, an intentionally introduced species of flea beetle has more impact as the primary biological control agent on tansy ragwort (L.C. Burrill, et al. 1994). It is not anticipated that this proposed project will have any adverse impact on flea beetle populations.

Two studies examined the indirect effect of B.t.k. on the reproductive success of insectivorous birds through a possible reduction in food supply. The studies reported no significant differences between treated and untreated areas in numbers of eggs hatched or in nestling growth and development. When caterpillars weren't available, the birds switched to other available prey (Gaddis, 1987), (Gaddis and Corkran, 1986).

There is no evidence of significant adverse impacts of B.t.k. on aquatic organisms. In a study conducted on a benthic stream community there was no evidence that addition of B.t.k. to stream mesocosms created adverse effects for this community, even at greater than 100 times expected exposure rates (Richardson and Perrin, 1994).

2. Plants

Bacillus thuringiensis var. (kurstaki) (B.t.k.)

B.t.k. is non-toxic to plants. B.t.k. is sensitive to meteorological effects once it has been applied to plant surfaces. B.t.k. is readily removed from plant surfaces by rain and is rapidly degraded by sunlight (USDA, 1995, vol. IV, chapter 7, pp. 15). The use of Plyac will help slow the removal of B.t.k. by both rain and sunlight.

Changes in soil productivity and fertility due to B.t.k. are not likely. B.t.k. persists for a relatively short time, B.t. is known to occur naturally in soils worldwide, and applications of insecticides containing B.t. do not appear to increase levels of B.t. in soil (USDA, 1995, vol. I, p. 19). For more information about the fate of B.t.k. in the soil refer to 1995 FEIS, vol. 4, chapter 7, p. 16.

3. Threatened, Endangered, and Sensitive Species

In reference to the threatened, endangered, and sensitive species listed in the Affected Environment section of this EA and in Appendix G as possibly occurring/occurring in the vicinity of the proposed treatment areas, it is not anticipated that the proposed use of B.t.k. would adversely effect these named species.

Specifically with regard to the threatened and candidate salmonid species listed in Appendix G as likely to be found near the proposed treatment sites, B.t.k. has been tested in solution with certain salmonids and other fish species. Data supplied to the Environmental Protection Agency for the registration of B.t.k., showed no adverse effects to rainbow trout, bluegill sunfish, and sheepshead minnows at 100x the maximum expected environmental concentration over a 30-day time period (USDA, 1995, vol. IV, p. 5-51). Therefore it is not anticipated that the proposed use of B.t.k. would adversely effect these species.

## VI. MONITORING

During the treatment operation, a WSDA-designated monitor will observe all mixing and application of the spray material to ensure compliance with all federal, state, and local laws and regulations and adherence to the Standard Operating Procedures. See Appendix F.

The treatment site will be intensively monitored in the summer of 2001 using pheromone-baited traps to determine the effectiveness of the treatment, assist in the eradication, and delimit any residual populations of gypsy moths. This monitoring may indicate a need for further action.

No environmental sampling will be done in connection with this project. Applications of B.t.k. for gypsy moth eradication have not been shown to cause long-term environmental effects.

## VII. CUMULATIVE EFFECTS

No cumulative effects due to the proposed treatment action are anticipated.

## VIII. SUMMARY

This EA has analyzed the potential environmental effects of the proposed WSDA and USDA APHIS treatment program. This analysis was based on the 1995 USDA FEIS entitled, "Gypsy Moth Management in the United States: a cooperative approach" and the preferred alternative strategy proposed therein. The WSDA/USDA-APHIS gypsy moth eradication project strategy proposed for 2001 includes the use of the biological insecticide (B.t.k.) and the spreader-sticker Plyac, followed up by trapping, inspections for egg masses, and removal of egg masses where appropriate. It is felt that this IPM strategy will give the project the best chance of achieving the goal of eradicating the gypsy moth infestation while minimizing risks to human health as well as minimizing detrimental environmental consequences.

To summarize:

A. B.t.k. used as described in this Environmental Assessment presents minimal risk of significant impact on human health.

B. It is not anticipated that any non-target animal or plant populations would be adversely affected due to the limited size of the treatment area. Any detrimental effects on susceptible non-target organisms would be transient and these populations would recover as individuals from nearby untreated areas re-colonized the treatment areas.

C. Threatened, endangered, and sensitive species would not be adversely affected by this eradication project. Protective measures will be taken to protect the threatened, endangered, and sensitive species named in this EA.

D. No detrimental effects on vegetation, water, or soil are known or anticipated due to this eradication project.

E. No cumulative effects are known or anticipated.

## IX. LIST OF AGENCIES AND PERSONS CONSULTED

United States Department of Agriculture, Animal and Plant Health Inspection Service, Dr. Charles Divan & Nancy Sweeney, on content and style of EA.

Washington State Department of Health, Barbara Morrissey, for review of the proposed treatment with regard to human health concerns.

United States Fish and Wildlife Service, Ms. Bobbi Barrera, for review of proposed treatment area for the presence of threatened and endangered species.

National Marine Fisheries Service, Ms. Karla Reece, for information on threatened, endangered and candidate salmonid species.

Washington State Department of Ecology, Ms. Janet Boyd, for review of the proposed treatment area for areas of concern regarding water quality.

Washington State Department of Natural Resources, Natural Heritage Program, Ms. Sandy Swope Moody, for review of the proposed treatment area for the presence of sensitive species or habitats.

Washington State Department of Fish and Wildlife, Ms. Lori Guggenmos, for review of the proposed treatment area for the presence of sensitive species or habitats.

Washington State Department of Fish and Wildlife, Ms. Ann Potter, for review of the proposed treatment area for the presence of sensitive lepidopteran species.

## X. LIST OF PREPARERS

C. H. Phillips & J. W. Townsend
Project Entomologists
Laboratory Services Division
Washington State Department of Agriculture
3939 Cleveland Ave. SE
Olympia, WA 98501
1-800-443-6684

## XI. APPENDICES

A. References

B. Treatment Site Maps

C. Alternatives Described in 1995 FEIS

D. Washington State Department of Health Recommendations

E. Product Labels & Material Safety Data Sheets

F. Standard Operating Procedures

G. Letters and Permits received through interagency consultation concerning threatened, endangered, and sensitive species and habitats

## APPENDIX A

## REFERENCES


Aber, R., DeMelfi, T., Gill, T., Healey, B., Oswell, N., Ruhig, W., Speziale, H., and Witte, E. J. 1982. Rash illness Associated with Gypsy Moth Caterpillars--Pennsylvania. Morbidity and Mortality Weekly Report. 31:13, pp. 169-70.

Allen, V.T.; Gredmiller, O.; Tyler, W.B. 1991. Gypsy Moth Caterpillar Dermatitis Revisited. Journal of the American Academy of Dermatology. 24(6/1): 979-981.

Anderson, J.F.; Furniss, W.E. 1983. Epidemic of Urticaria Associated with First-instar Larvae of the Gypsy Moth (Lepidoptera: Lymantriidae). Journal of Medical Entomology. 20(2): 146-150.

Beaucher, W. N., and Farnham, J.E. 1982. Gypsy-Moth-Caterpillar Dermatitis. The New England Journal of Medicine. 306:21, pp. 1301-02.

Burrill, L.C., Callihan, R.H., Parker, R., Coombs, E., Radtke, H. 1994. Tansy Ragwort Senecio jocobaea L. A Pacific Northwest Extension Publication, Oregon , Idaho, Washington.

Capital Health Region Office of the Medical Health Officer Director of Research. 1999. Human Health Surveillance During the Aerial Spraying for Control of North American Gypsy Moth on Southern Vancouver Island, British Columbia, 1999. December 31, 1999, p 34.

Corbett, E.S. 1992. Gypsy Moth Defoliation Impacts on Water Quality and Quality. U.S. Department of Agriculture Interagency Gypsy Moth Research Forum. University Park PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station, 310 Forest Resources Laboratory. p. 31.

Duphar, B.V. 1987. Fact Sheet on Dimilin, Report No. C.303.0503.

Eisler R. 1992. Diflubenzuron Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Dept. of Interior, Fish and Wildlife Service, Biological Report 4: Contaminant Hazard Reviews Report 25, June 1992.

Farlow, J.E. 1976. Dimilin the Aquatic Fauna of a Louisiana Coastal Marsh. Ph.D. Thesis, Louisiana State University and Agricultural and Mechanical College, Baton Rouge. 144 pp.

Gaddis, P.K., and Corkran, C.C. 1986. Secondary Effects of B.t. Spray on Avian Predators: the Reproductive Success of Chestnut-backed Chickadees.

Gaddis, P.K. 1987. Secondary Effects of B.t. Spray on Avian Predators: the Reproductive Success of Chickadees.

Gartrell, M. 1981. Diflubenzuron. U.S. Food and Drug Administration, Bureau of Foods, HFF-420. 8 pp.

Green, M., Heumann, M., Sokolow, R., Foster, L.R., Bryant, R., and Skeels, M. 1990. Public Health Implications of the Microbial Pesticide Bacillus thuringiensis: An Epidemiological Study, Oregon, 1985-86. American Journal of Public Health. 80:7, pp. 848-52.

Ivie, G. W. 1978 . Fate of Diflubenzuron in Cattle and Sheep. Journal of Agriculture and Food Chemistry .26:90-94.

James, R.R., Miller, J.C., and Lighthart, B. 1993. Bacillus thuringiensis var. kurstaki Affects a Beneficial Insect, the Cinnabar Moth (Lepidoptera: Arctiidae). Journal of Economic Entomology. 86:2, pp.334-39.

Kubena, L.F. 1981. The Influence of Diflubenzuron on Several Weight Characteristics in Growing Male Broiler and Layer Chickens. Poultry Science. 60:1175-1182.

Kubena, L.F. 1982. The Influence of Diflubenzuron on Several Reproductive Characteristics in Male and Female Layer-Breed Chickens. Poultry Science. 61:268-271.

Martinat, P.J., Christman, V., Cooper, R.J., Dodge, K.M., Whitmore, R.C., Booth, G., and Seidel, G. 1987. Environmental Fate of Dimilin 25-W in a Central Appalachian Forest. Bulletin of Environmental Contamination and Toxicology. 39:142-149.

Miller, J.C. 1990. Field Assessment of the Effects of a Microbial Pest Control Agent on Nontarget Lepidoptera. American Entomologist. 37, pp. 135-39.

Miller, R.W., Corley, C., Oehler, D.D., and Pickens, L.G. 1976 . Feeding TH 6040 to Cattle: Residues in Tissues and Milk and Breakdown in Manure. Journal of Agricultural and Food Chemistry. 24:687-688.

Muzzarelli, R. 1986. Chitin Synthesis Inhibitors: Effects on Insects and on Nontarget Organisms. CRC Critical Reviews in Environmental Control. 16:141-146.

National Gypsy Moth Management Group, Inc. 1991. A Rash of Gypsy Moths: Allergic Reactions to Caterpillars a Serious Problem. Newsletter (Spring); p 3.

Noble, M.A., Riben, P.D., and Cook, G.J. 1992. Microbiological and Epidemiological Surveillance Programme to Monitor the Health Effects of Foray 48B BTK Spray.

Novo Nordisk, Commonly Asked Questions Concerning Foray, The Environment and the Safety of Foray. Foray Information.

Perlman, F. 1965. Arthropods in Respiratory Tract Allergy: Their Relationship to Allergens in House Dust. Acta Allergologica (Copenhagen) 21: 241-253.

Petsonk E. 1994. National Institute for Occupational Safety and Health, Montgomery, WV. [Telephone conversation with Patrick R. Dunkin]. 7 March.

Richardson, John S.; Perrin, Chris J. 1994. Effects of the Bacterial Insecticide Bacillus thuringiensis var. kurstaki (B.t.k.) on a Stream Benthic Community. Canadian Journal of Aquatic Sciences. 51.

Richmond, M.L., Henny, C.J., Floyd, R.L., Mannan, R.W., Finch, D.M., and DeWeese, L.R. 1979. Effects of Sevin-4-Oil, Dimilin, and Orthene on Forest Birds in Northeastern Oregon. U.S. Department of Agriculture, Pacific Southwest Forest Range Experiment Station, Research Paper PSW-148. 19 pp.

Sample, B.E., Butler, L., and Whitmore, R.C. 1992. How Bacillus thuringiensis (Bt) Affects Arthropods Other than the Gypsy Moth: Preliminary Results. USDA Forest Service.

Shama, S. K., Etkind, P. H., Odell, T. M., Canada, A. T., Finn, A. M., and Soter, N. A. 1982. Gypsy Moth Caterpillar Dermatitis. The New England Journal of Medicine. 306:21, pp. 1300-01.

Stoner. A., and Wilson, W.T. 1982. Diflubenzuron (dimilin) Effect of Long-Term Feeding of Low Doses in Sugar-Cake or Sucrose Syrup on HoneyBees in Standard-Size Field Colonies. American Bee Journal. 122:579-582.

Tuthill, R.W., Canada, A.T., Wilcock, K., Etkind, P.H., Odell, T. M., and Shama, S.K. 1984. An Epidemiologic Study of Gypsy Moth Rash. American Journal of Public Health. 74:8, pp. 799-803.

U. S. Department of Agriculture. 1992. Potential Impacts of Asian Gypsy Moth in the Western United States. USDA Forest Service, Forest Pest Management, State and Private Forestry. Washington D.C.

U. S. Department of Agriculture. 1995. Gypsy Moth Management in the United States: a cooperative approach. Final Environmental Impact Statement as Supplemented--1995. USDA Animal and Plant Health Inspection Service and USDA Forest Service. Washington D.C.

U. S. Environmental Protection Agency. 1998. Reregistration Eligibility Decision (RED) *Bacillus thuringiensis*. EPA738-R-98-004. March 1998, pp. 32-33.

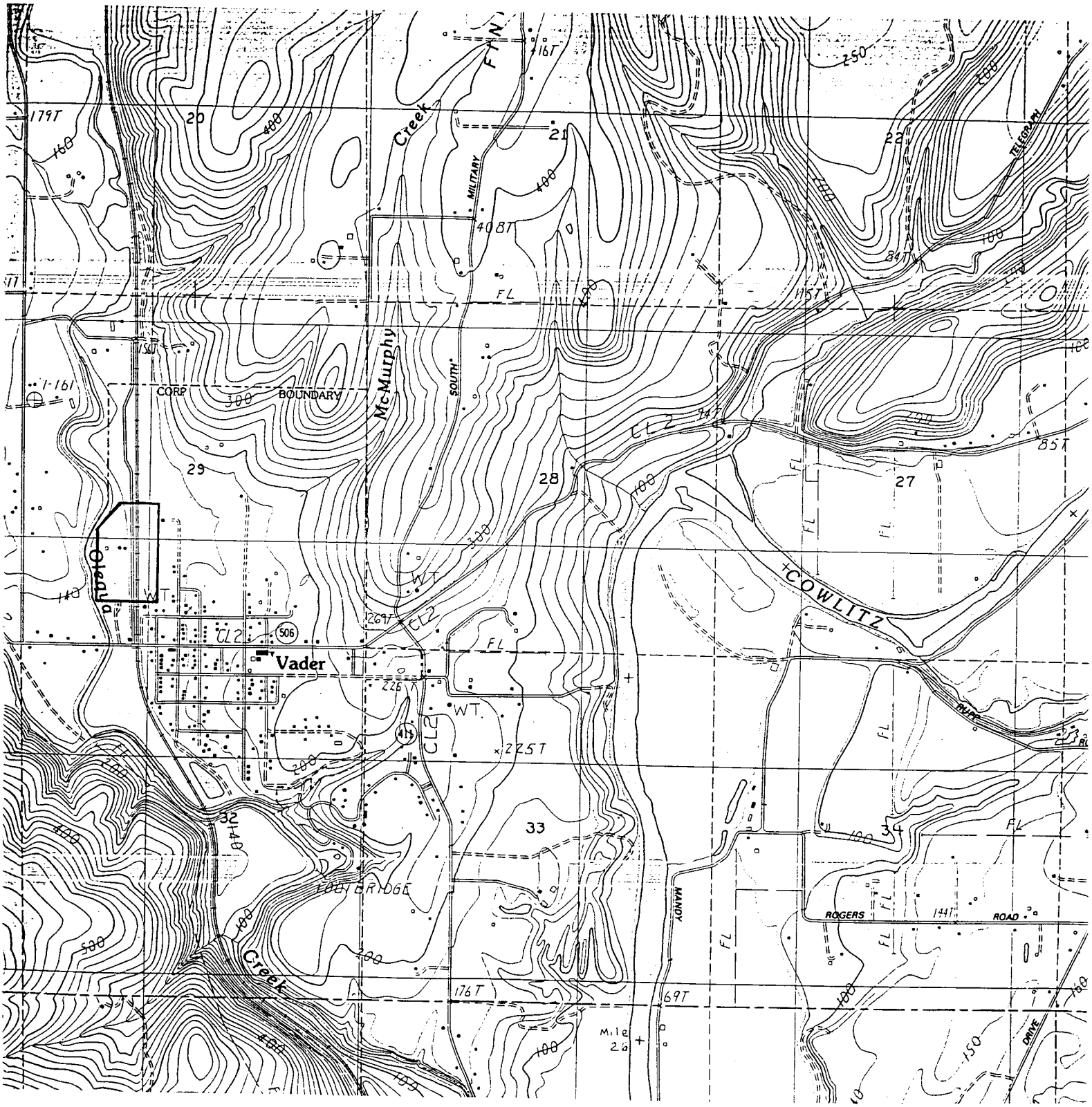
Washington State Department of Health. 1993. Report of Health Surveillance Activities, Asian Gypsy Moth Control Program.

Young, M.F., Trombetta, L.D., and Carson, S. 1986. Effects of Diflubenzuron on the Mouse Liver. Journal of Applied Toxicology. 6:343-348.

# APPENDIX B

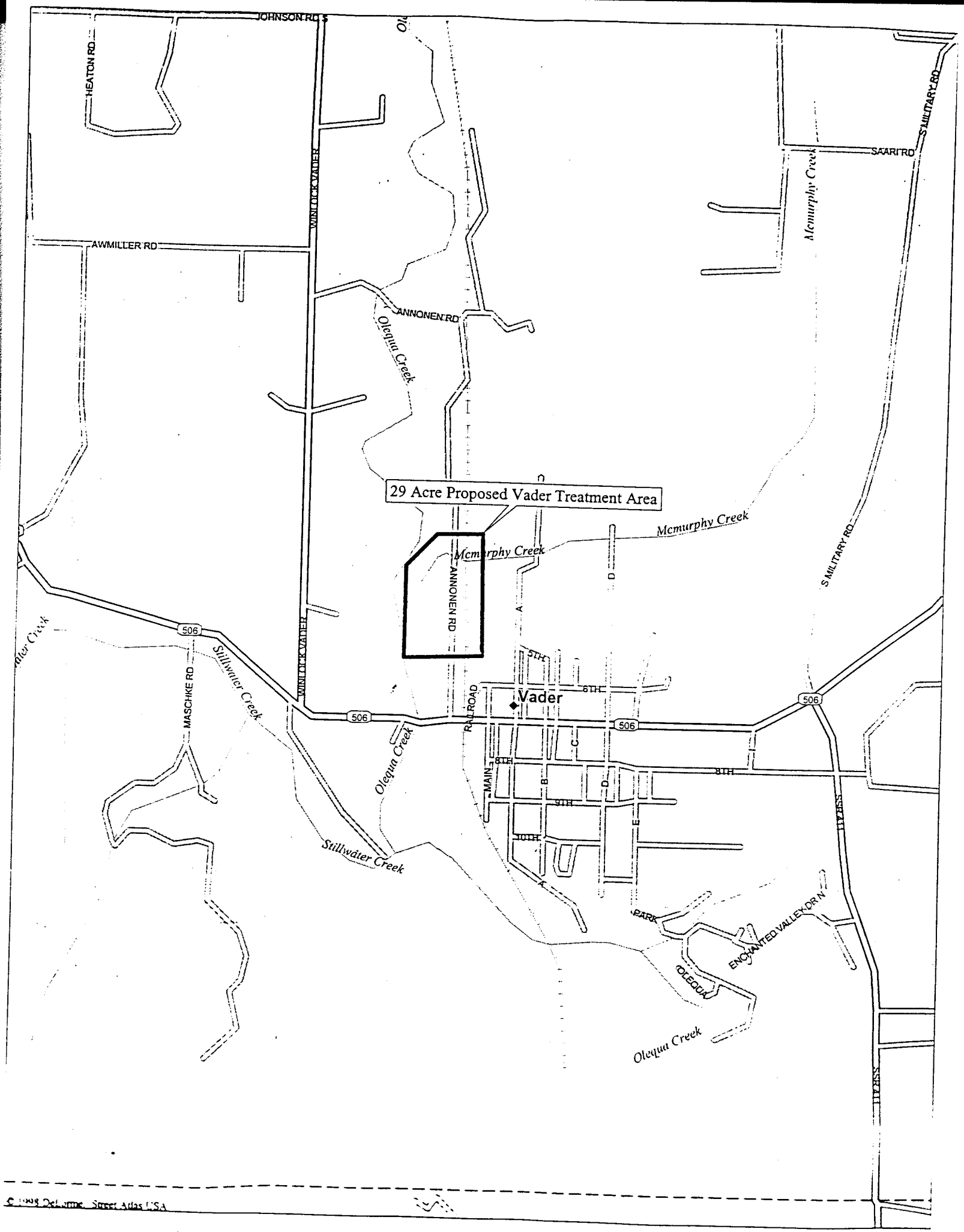
## Treatment Site Maps

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

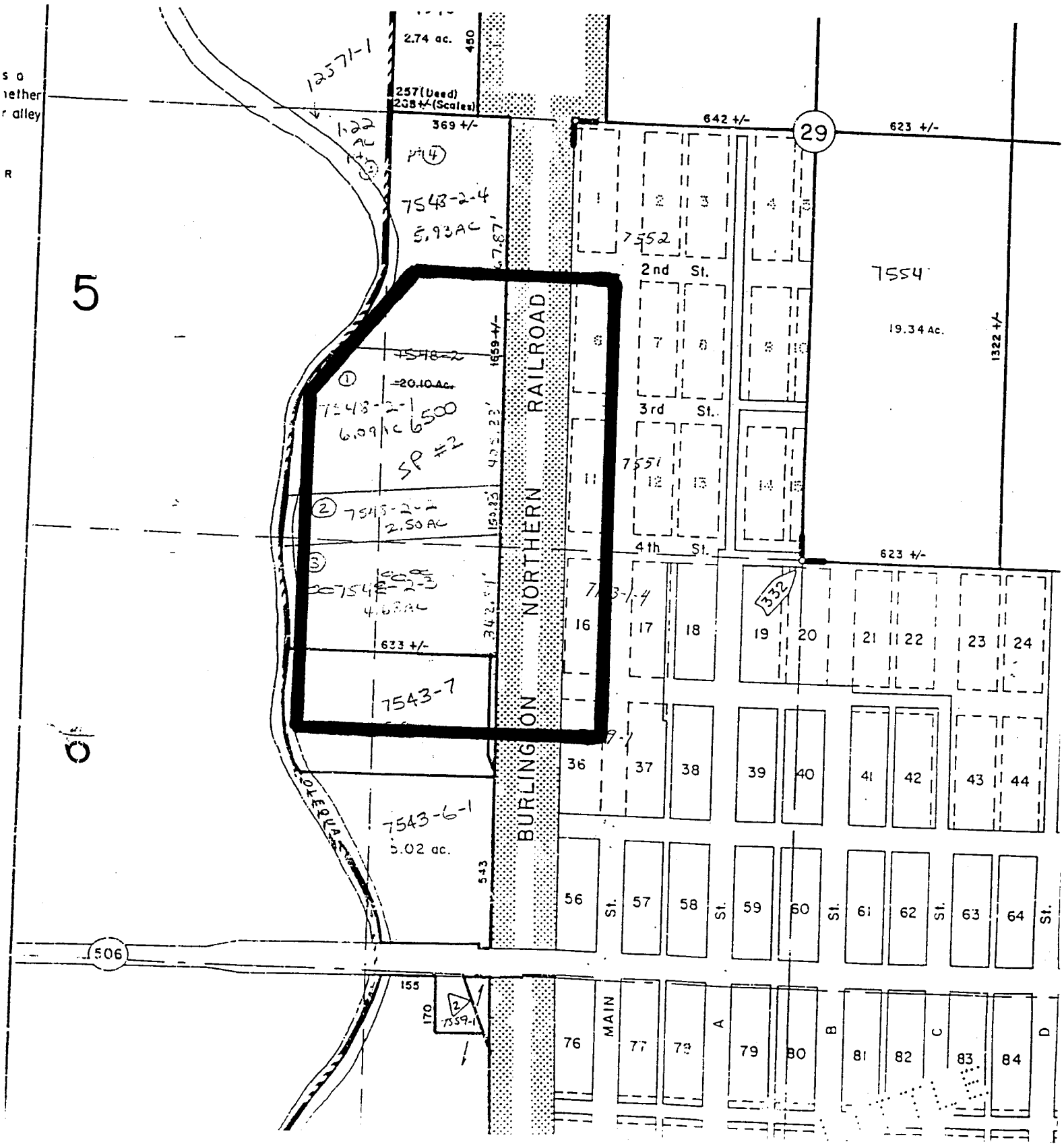



Proposed 2001
Gypsy Moth Treatment Area
Vader

(From Winlock, WA. 7.5 Minute Series)


29 Acre Proposed Vader Treatment Area
Vader
JOHNSON RD S
HEATON RD
WINLOCK VADER
AWMILLER RD
ANNONEN RD
Olequa Creek
Mcmurphy Creek
SAARI RD
S MILITARY RD
506
Stillwater Creek
MASCHKE RD
RAILROAD
MAIN
5TH
6TH
8TH
9TH
10TH
PARK
ENCHANTED VALLEY DR N
OLEQUA
SSR 411
© 1998 DeLorme Street Atlas USA

# 2001 GYPSY MOTH PROGRAM




Proposed 2001
Gypsy Moth Treatment Area
Vader

# APPENDIX C

## Alternatives Described in 1995 FEIS

### Alternative 1. No Suppression, No Eradication, No Slow the Spread

Under alternative 1, the Forest Service and APHIS would not suppress, eradicate, or slow the spread of the gypsy moth (*fig. 2-5*).

Implementation of alternative 1 would not reduce damage, prevent establishment, or slow the spread of the gypsy moth.

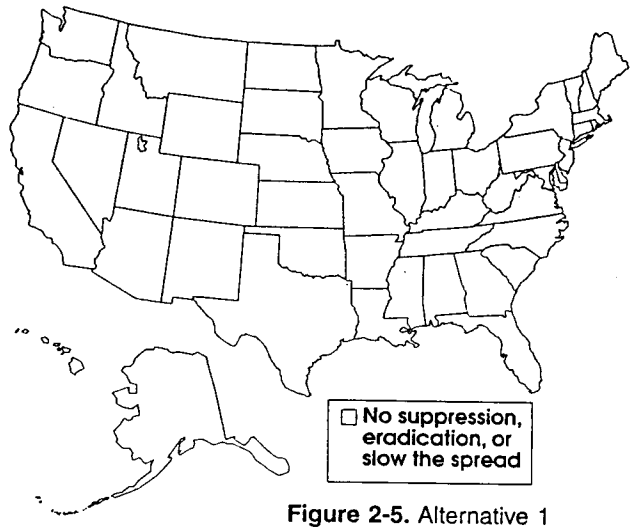



**Figure 2-5.** Alternative 1

### Alternative 2. Suppression

Under alternative 2, the Forest Service could conduct suppression projects and cooperate with other Federal agencies and States to conduct suppression projects (*fig. 2-6*).

The Forest Service and APHIS would not slow the spread in the transition area, and neither would eradicate isolated infestations.

Implementation of alternative 2 would help reduce damage caused by the gypsy moth in the generally infested area.

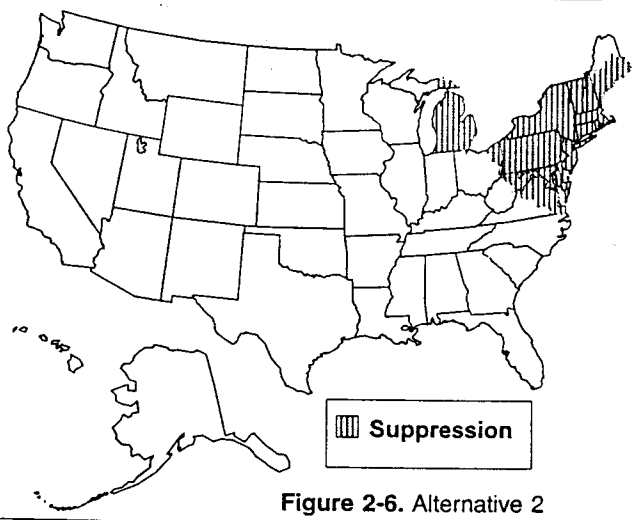



**Figure 2-6.** Alternative 2

### Alternative 3. Eradication

Under alternative 3 the Forest Service and APHIS could conduct eradication projects and cooperate with other Federal agencies and States to conduct eradication projects (*fig. 2-7*).

The Forest Service would make no coordinated effort to suppress the gypsy moth in the generally infested area. The Forest Service and APHIS would not slow the spread in the transition area.

Implementation of alternative 3 would prevent establishment of gypsy moth populations in the uninfested area. The Asian strain of the gypsy moth would be eradicated wherever it is found, including the generally infested area when the source of the introduction is known.

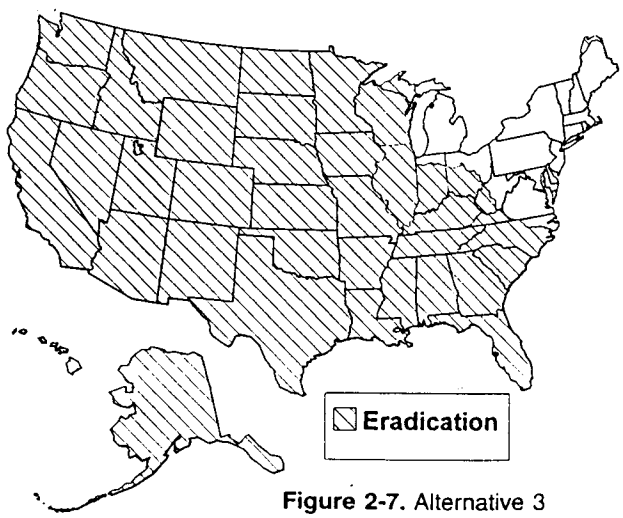



**Figure 2-7.** Alternative 3

### Alternative 4. Suppression and Eradication

Under alternative 4 the Forest Service could conduct suppression projects and cooperate with other Federal agencies and States to conduct suppression projects. The Forest Service and APHIS could conduct eradication projects, and cooperate with other Federal agencies and States to conduct eradication projects (*fig. 2-8*). This alternative proposes the continuation of gypsy moth strategies currently being implemented. Alternative 4 represents the "no action" alternative in that it would be no change from the current program.

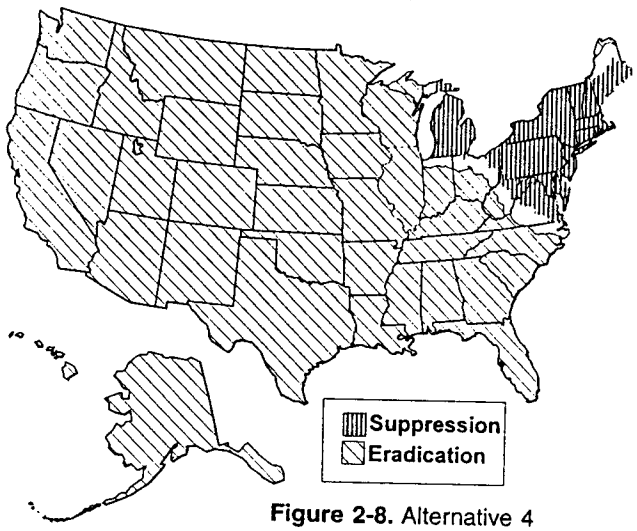



**Figure 2-8.** Alternative 4

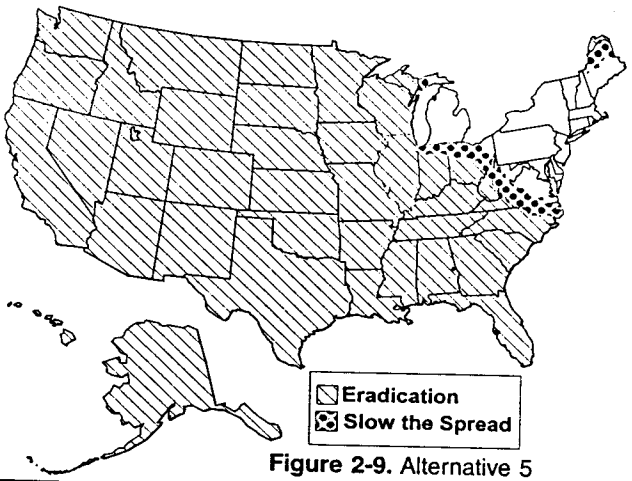



**Figure 2-9.** Alternative 5

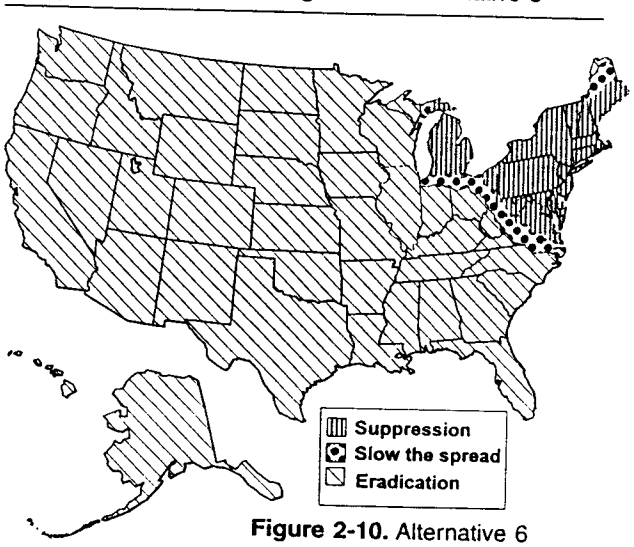



**Figure 2-10.** Alternative 6

USDA agencies would make no coordinated effort to reduce the rate of spread of the insect in the transition area.

Implementation of alternative 4 would reduce damage caused by the gypsy moth in the generally infested area and prevent establishment of gypsy moth populations in the uninfested area. The Asian strain of the gypsy moth would be eradicated wherever it is found, including the generally infested area when the source of the introduction is known.

## Alternative 5. Eradication and Slow the Spread

Under alternative 5 the Forest Service and APHIS could conduct eradication and slow-the-spread projects, and cooperate with other Federal agencies and States to conduct eradication and slow-the-spread projects (*fig. 2-9*).

The Forest Service would make no coordinated effort to suppress outbreak populations of the gypsy moth in the generally infested area.

Implementation of alternative 5 would prevent establishment of gypsy moth populations in the uninfested area and slow the natural spread of the insect in the transition area. The Asian strain of the gypsy moth would be eradicated wherever it is found, including the generally infested area when the source of the introduction is known.

## Alternative 6. Suppression, Eradication, and Slow the Spread (Preferred)

Under alternative 6 the Forest Service could conduct suppression projects, and cooperate with other Federal agencies and States to conduct suppression projects. The Forest Service and APHIS could conduct eradication and slow-the-spread projects and cooperate with other Federal agencies and States to conduct eradication and slow-the-spread projects (*fig. 2-10*). Alternative 6 is the preferred alternative.

Implementation of alternative 6 would help reduce damage in the generally infested area, prevent establishment of gypsy moth populations in the uninfested area, and slow the natural spread of the insect in the transition area. The Asian strain of the gypsy moth would be eradicated wherever it is found, including the generally infested area when the source of the introduction is known.

# APPENDIX D

## Washington State Department of Health Recommendations

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
*7171 Cleanwater Lane, Building 4 • P.O. 47825 Olympia, Washington 98504-7825*
*TDD Relay Service (800) 833-6388*

February 2001

# HEALTH RECOMMENDATIONS FOR GYPSY MOTH SPRAYING

Washington State Department of Agriculture has proposed a ground application of BTK for gypsy moth control in a 29-acre site in Vader later this spring. If you live in the area to be sprayed, you are not likely to experience any health problems due to the spray.

BTK, the active ingredient in the spray, are natural soil bacteria that have been used for years to kill pest caterpillars. Of the insect sprays used on gypsy moths, BTK is the safest for people and animals. Some workers using BTK for weeks at a time have experienced mild skin and respiratory reactions. After aerial spraying with BTK, some members of the general public have also complained of mild skin reactions; eye, nose, or throat irritation; and worsening of asthma or allergies. The vast majority of persons living in sprayed areas have reported no symptoms.

The Washington State Department of Health (DOH) and the Lewis County Public Health Department recommend that people in the area to be sprayed minimize exposure by doing the following:

1. Stay indoors for at least 30 minutes after the spraying to allow droplets to settle.
2. Wait until the spray has dried before letting skin touch the treated leaves and bushes.
3. Wash skin with soap and water if you come in contact with the spray.
4. People in the sprayed area can sign up with the Department of Agriculture (800-443-6684) to be notified the day before spraying.

**Special health concerns**: It is possible that individuals with certain health conditions may be more sensitive to the spray. If you have asthma, severe allergies to food or food preservatives, or immune disorders, you may want to stay indoors longer or leave the sprayed area during the day of treatment. We encourage people with special health concerns to talk with their personal doctor for advice.

If you have an illness that you think is related to the spraying, please report this to the Department of Health at (360) 236-3360 or (800) 586-9427.

**For more health information**:

| | |
|---|---|
| Lewis County Public Health, Steve Garrett | (360) 740-1233 |
| Washington State Department of Health, Barbara Morrissey | (360) 236-3368 |
| National Pesticide Telecommunication Network | (800) 858-7378 |
| Washington Poison Center | (800) 732-6985 |

# APPENDIX E

## Product Labels & Material Safety Data Sheets

FORAY 48B
EPA REG. NO. 73049-46

# Foray 48B

## Flowable Concentrate

List No. 60178-04- ##

**Active Ingredient:**

| | |
|---|---|
| Bacillus thuringiensis, subsp. kurstaki | 2.1% w/w |
| Inert Ingredients | 97.9% w/w |
| Total | 100.0% w/w |

**POTENCY: 10,600 IU/mg**

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

For MEDICAL and TRANSPORT Emergencies ONLY Call 24 Hours A Day 1-877-315-9819.
For All Other Information Call 1-800-323-9597

**See enclosure for additional precautionary statements and statements of practical treatment.**

EPA Registration No.: 73049-46
EPA Est. No.: 33762-IA-001

VALENT BIOSCIENCES CORPORATION
870 Technology Way
Libertyville, IL 60048, USA

Lot No.: ##-###-##
Date of Mfg.: ### ##
Net Contents: ##############

04-3193/R4

8-1/2"

11"

Flowable Concentrate

# Foray® 48B

KEEP OUT OF REACH OF CHILDREN

## CAUTION

List No. 60178

**For MEDICAL and TRANSPORT Emergencies ONLY Call 24 Hours A Day 1-877-315-9819.**
**For All Other Information Call 1-800-323-9597.**

ACTIVE INGREDIENT:

| | |
|---|---|
| *Bacillus thuringiensis* subsp. *kurstaki*, Lepidopteran Active Toxin | 2.1% |
| INERT INGREDIENTS | 97.9% |
| TOTAL | 100.0% |

POTENCY: 10,600 International Units (TU)/mg of product (equivalent to 48 billion IU/GAL). Potency units should not be used to adjust use rates.

**STATEMENTS OF PRACTICAL TREATMENT**
**If on Skin:** Wash with plenty of soap and water. Get medical attention.
**If in Eyes:** Flush with plenty of water. Call a physician if eye irritation persists.

**PRECAUTIONARY STATEMENTS**
**HAZARD TO HUMANS (AND DOMESTIC ANIMALS)**
**CAUTION**
Causes moderate eye irritation. Avoid contact with skin, eyes, open wounds or clothing. Wash thoroughly with soap and water after handling.

**Personal Protective Equipment (PPE)**
Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**USER SAFETY RECOMMENDATIONS**
Users should: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

**Environmental Hazards**
Do not contaminate water when disposing of equipment washwaters.

**DIRECTIONS FOR USE**
It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your state or Tribe, consult the agency responsible for pesticide regulation.

**STORAGE AND DISPOSAL**
Do not contaminate water, food or feed by storage or disposal of waste.

**Storage:** Store in a cool, dry place. Keep containers tightly closed when not in use. Store in temperatures above freezing and below 32° C (90° F).

**Pesticide Disposal:** Pesticide waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility in accordance with federal and local regulations.

**Container Disposal:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**DIRECTIONS FOR NON-AGRICULTURAL APPLICATIONS**
Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or on golf courses or lawns and grounds.

Not for use on trees being grown for sale or other commercial use, or for commercial seed production, or for the production of timber or wood products, or for research purposes except wide-area public pest control programs sponsored by government entities, such as mosquito abatement, gypsy moth control, and Mediterranean fruit fly eradication.

**MIXING**
Foray 48B contains the spores and endotoxin crystals of *Bacillus thuringiensis kurstaki*. Foray 48B is a stomach poison and is effective against lepidopterous larvae. After ingestion, larvae stop feeding within hours and die 2-5 days later. Maximum activity is exhibited against early instar larvae. Foray 48B may be used for both ground and aerial application. The product should be shaken or stirred before use. Add some water to the tank mix, pour the recommended amount of Foray 48B into the tank and then add the remaining amount of water to obtain the proper mix ratio. Agitate as necessary to maintain the suspension. The diluted mix should be used within 72 hours.

**APPLICATION**
**Ground Application:** Use an adequate amount of tank mix to obtain thorough coverage without excessive run off. Use the recommended per acre dosages of Foray 48B in the following amounts of water:

| | |
|---|---|
| High volume hydraulic sprayers | 100 gallons |
| Mist blowers | 10 gallons |

**Aerial Application:** Foray 48B may be applied aerially, either alone or diluted with water at the dosages shown in the application rates table. Spray volumes of 32-128 ounces per acre are recommended. Best results are expected when Foray 48B is applied to dry foliage.

**APPLICATION RATES**

| Crop | Pests | Rate[1] (pts/acre) | Dosage[1] (BIU/Acre) |
|---|---|---|---|
| Forests, Shade Trees, Ornamentals, Shrubs, Sugar Maple Trees, Ornamental Fruit, Nut and Citrus Trees[2] | Gypsy Moth & Asian Gypsy Moth, Elm Spanworm | 1.3 - 6.7 | 8 - 40 |
| | Spruce Budworm, Browntail Moth, Douglas Fir Tussock Moth, Coneworm | 1.3 - 5 | 8 - 30 |
| | Tussock Moths, Pine Butterfly, Bagworm, Leafrollers, Tortix, Mimosa Webworm, Tent Caterpillar, Jackpine Budworm, Blackheaded Budworm, Saddled Prominent, Saddleback Caterpillar, Eastern and Western Hemlock Looper, Orange-striped Oakworm, Satin Moth | 1 - 2.7 | 6 - 16 |
| | Redhumped Caterpillars, Spring and Fall Cankerworm, California Oakworm, Fall Webworm | 0.7 - 1.3 | 4 - 8 |

[1] Use the higher recommended rates on advanced larval stages or under high density larval populations.
[2] In treating Gypsy Moth and Asian Gypsy Moth infested trees and shrubs in urban, rural and semi-rural areas, exposure of non-target vegetation including, but not limited to, native and ornamental species and food or feed crops is permitted.

**NOTICE OF WARRANTY**
Seller makes no warranty of merchantability, fitness for any purpose, or otherwise, express or implied, concerning this product or its uses which extend beyond the use of the product under normal conditions in accord with the statements made on this label. In no case shall the seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the buyer.

EPA Reg. No. 73049-46
EPA Est. No. 33762-IA-001

For product information, contact: 1-800-323-9597

VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
LIBERTYVILLE, IL 60048

04-3238/R4

Proof A B C D E

Valent BioSciences
Prepared by IPCO Printing
LIST NO. 60178-04
COMMOD. NO. 04-3238
LABEL EDITOR Tinoco
DATE PREPARED 09/13/2000
DRAWING NUMBER –
ARTIST BM

FORMULA & LABEL CONTROL APPROVAL B-V2SR
APPROVED BY
DATE
"NOT VALID UNLESS FINAL PROOFS CARRY APPROVAL SIGNATURE

COLOR SEPARATIONS
PMS Black

**Valent BioSciences**

# Foray® 48B

**Biological Insecticide**

## Material Safety Data Sheet

Valent BioSciences Corporation
870 Technology Way, Suite 100
Libertyville, IL 60048
Emergency Telephone - Prosar: 1-877-315-9819
Valent BioSciences Telephone: 1-847-968-4790

| | |
|---|---|
| **Issue Date:** | 02/09/01 |
| **List/Code:** | 60178/11046 |
| **DOT Classification:** | Not Regulated |
| **EPA Registration No.:** | 73049-46 |
| **Emergency Overview:** | This material may cause transient skin and eye irritation. |
| **NFPA:** | Health 0 ; Fire 1 ; Reactivity 0 |

## COMPOSITION / INGREDIENTS

| | | *Bacillus thuringiensis* var. *kurstaki* | Inert Ingredients* |
|---|---|---|---|
| **Ingredient Name:** | | | |
| **% Concentration:** | | 2.1% | 97.9% |
| **CAS/RTECS Numbers:** | | 68038-71-1, N/A | N/A, N/A |
| **OSHA-PEL** | **8HR TWA:** | N/L | N/L |
| | **STEL:** | N/L | N/L |
| | **Ceiling:** | N/L | N/L |
| **ACGIH-TLV** | **8HR TWA:** | N/L | N/L |
| | **STEL:** | N/L | N/L |
| | **Ceiling:** | N/L | N/L |
| **OTHER LIMITS** | **8HR TWA:** | N/A | N/A |
| | **STEL:** | N/A | N/A |
| | **Ceiling:** | N/A | N/A |

*Identity withheld as a trade secret

## HEALTH CONSIDERATIONS

| | |
|---|---|
| **Route(s) of Entry:** | Skin: No Inhalation: No Ingestion: No |
| **Carcinogenicity Rating:** | NTP: N/L IARC: N/L OSHA: N/L ACGIH: N/L None |
| **Signs and Symptoms:** | N/D. May cause skin, eye and respiratory irritation. |
| **Medical Conditions Aggravated by Exposure:** | N/D. |
| **Oral Toxicity:** | N/D. LD50 > 5000 mg/kg in rats for a similar formulation. EPA Category IV. |
| **Dermal Toxicity:** | N/D. LD50 > 2500 mg/kg in rabbits for a similar formulation. EPA Category III. |
| **Inhalation Toxicity:** | N/D. A similar formulation was not lethal in an inhalation study at the maximum achievable concentration of 6.81 mg/ltr. EPA Category IV. |
| **Corrosiveness:** | N/D. A similar formulation was not corrosive. |
| **Dermal Irritation:** | N/D. A similar formulation had slight skin reactions up to 24 hrs after treatment. EPA Category IV. |
| **Ocular Irritation:** | N/D. A similar formulation was mildly irritating, which was reversible within 7 days. EPA Category III. |
| **Dermal Sensitization:** | N/D. |
| **Target Organs:** | Possibly skin, eyes and respiratory tract. |
| **Special Target Organ Effects:** | N/D. |
| **Carcinogenicity Information:** | N/D. |

## EMERGENCY AND FIRST AID PROCEDURE

**Eyes/Skin:** Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Ingestion/ Inhalation:** Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/ supportive care as necessary.

## FIRE FIGHTING PROCEDURES

| | |
|---|---|
| **Flash Point:** | N/D |
| **Lower Explosive Limit (%):** | N/D |
| **Upper Explosive Limit (%):** | N/D |
| **Autoignition Temperature:** | N/D |
| **Fire and Explosive Hazards:** | N/D |
| **Extinguishing Media:** | Use appropriate medium for the underlying cause of the fire. |
| **Fire Fighting Instructions:** | Wear protective clothing and self-contained breathing apparatus. |

## SAFE HANDLING, USE, STORAGE, and DISPOSAL

| | |
|---|---|
| **Handling:** | Avoid dust generation and provide room ventilation during handling. |
| **Storage:** | Store in a cool, dry place. Keep containers tightly closed when not in use. Store in temperatures above freezing and below 32°C (90°F). |
| **Special Precautions:** | Wash thoroughly with soap and water after handling. |
| **Spill or Release Procedures:** | Recover product and place in an appropriate container for disposal. Ventilate and wash the spill area. |
| **Disposal:** | Dispose of product in accordance with federal, state, and local regulations. |

## EXPOSURE CONTROLS/PERSONAL PROTECTION

**Field Application:** Applicators and other handlers must wear:

* Long sleeved shirt and long pants
* Waterproof gloves
* Shoes plus socks

# Foray® 48B

## PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance/Physical State:** | Light brown suspension. |
| **Odor:** | Pungent, bacterial. |
| **Boiling Point:** | N/D |
| **Melting/Freezing Point:** | N/D |
| **Vapor Pressure (mm Hg):** | N/D |
| **Vapor Density (Air=1):** | N/D |
| **Evaporation Rate:** | N/D |
| **Bulk Density:** | 1.12-1.2 g/cm$^3$ |
| **Specific Gravity:** | N/D |
| **Solubility:** | Readily mixable in water. |
| **pH:** | 4.1-4.8 as a 10% solution in water |
| **Viscosity:** | N/D |
| **Reactivity:** | Alkalinity inactivates product. |

**LEGEND**

N/A = Not Applicable
L = Listed
ltr - liter
N/D = Not Determined
S = Short Term
N/L = Not Listed
C = Ceiling



VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
[illegible]

*AG4951/R10 February 2001*

12(00/01) ~~4.15~~ ~~15.96~~ (new 4/15/95) ~~21.95~~
1(98/99) ~~15.97~~

## DIRECTIONS
### FOR GENERAL USE IN SPRAY MIXTURES OF INSECTICIDES, FUNGICIDES, REPELLENTS AND WEED KILLER SPRAYS.

Use 2 to 4 ounces per 100 gallons of spray mixture. Rates as high as 1 pint per 100 gallons may prove advantageous when used with non-selective weed killers. Add PLYAC to the spray tank with good agitation, after all other spray materials have been added, when the tank is about 3/4 full.

**In Concentrate Sprays**—Use 2 to 4 fluid ounces per acre on field crops such as cotton, forage, grain, and row crops.

**With Cotton Defoliants**—Use 1/2 to 1 pint per acre, depending on size of plants.

**Cattle Spray and Dip Treatment**—Use 4 to 8 ounces of PLYAC per 100 gallons of spray or dip mixture. PLYAC should be added to the spray or dip tank after all other insecticides have been added and the tank is 3/4 full.

### FOR USE IN BULB DIP

**Tulips**—To improve appearance of tulip bulbs by holding on the skins, use 1 part PLYAC in 5 parts of water. After bulbs have been dug, dried for about 2 days and graded—then dip for several seconds into stock tank containing PLYAC solution, take out and drain. Then place bulbs back on drying trays and return to drying rooms.

**Gladiolus**—For treatment of corms that are to be stored soak for 15 to 30 minutes in a solution containing 5 pounds Captan 75 W, 2 pints Parathion EM-2 emulsifiable concentrate and 3 quarts PLYAC immediately after cleaning and grading. The PLYAC will form a film which will hold the chemical dip on the corms. **NOTE:** For use of Captan and Parathion, follow the direc-

# Hopkins®
# PLYAC®
## NON-IONIC SPREADER-STICKER

**FOR INCREASED EFFECTIVENESS OF INSECTICIDE, FUNGICIDE, REPELLENT AND WEED KILLER SPRAYS**

| | |
|---|---|
| PRINCIPAL FUNCTIONING AGENTS: Emulsifiable oxidized polyethylene and ethoxylated phenoxy alcohol | 27.50% |
| CONSTITUENTS INEFFECTIVE AS SPRAY ADJUVANT | 72.50% |
| TOTAL | 100.00% |

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

**NET CONTENTS ■ 4 × 1 GALLON**
**■ 2 × 2 1/2 GALLONS**

### FOR USE WITH RABBIT AND DEER REPELLENT

To protect fruit trees, shrubs, ornamentals and nursery stock from rabbits and deer, mix 1 quart of PLYAC with 1 quart of Thiram 42-S in 2 quarts of water. Spray twigs and foliage to be protected with a heavy coating. If heavier deposits are desired reduce the amount of water in the mixture. Make treatments before animal damage is expected. **NOTE:** For these and additional uses of Thiram 42-S as a repellent follow the directions and precautions as directed on that label. Do not use on plant parts that are to be used for food or feed.

### STORAGE

This product cannot be readily poured if stored below 30°F, however, freezing has no adverse effects on the quality of the product.

### NOTICE OF WARRANTY

Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herewith.


MANUFACTURED FOR
HACO, inc.
BOX 7190
MADISON, WISCONSIN 53707 U.S.A.

# MATERIAL SAFETY DATA SHEET

## I. IDENTIFICATION OF PRODUCT

HACO, INC.
P. O. BOX 7190
MADISON, WISCONSIN 53707

EMERGENCY PHONE NUMBERS 1-800-424-9300 CHEMTREC
1-970-356-8920 LOVELAND IND.
CALL CHEMTREC 24 HOURS A DAY @ 1-800-424-9300

TRADE NAME: **PLYAC**
CHEMICAL NAME: Oxidized Polyethylene and Ethyoxylated Phenoxy Alcohol
CHEMICAL FAMILY: Sticker

## II. HAZARDOUS COMPONENTS OF MIXTURES

| COMPONENT | CAS # | TLV(UNITS) |
|---|---|---|
| NONE | | |

## III. PHYSICAL DATA

| | | | |
|---|---|---|---|
| BOILING POINT: | Not Est. | VAPOR DENSITY(AIR=1): | Not Avail. |
| BULK DENSITY: | 8.32#/Gallon | % VOLATILE BY VOL: | Not Avail. |
| SPECIFIC GRAVITY: | 0.998 | APPEARANCE: | Milky-white to Light Yellow Liquid |
| SOLUBLE IN WATER: | Emulsifies | ODOR: | Paraffin-Like |
| VAPOR PRESSURE (mm OF Hg) @ 20 D C: | | Not Est. | |

## IV. FIRE & EXPLOSION HAZARD DATA

| | |
|---|---|
| FLASH POINT (TEST METHOD): | 190°F (TCC) |
| FLAMMABLE LIMITS (UEL AND LEL): | Not Avail. |
| EXTINGUISHING MEDIA: | Water fog, Dry Chemical, $CO_2$. |
| SPECIAL FIRE FIGHTING PROCEDURES: | Use water in fine spray to cool fire exposed unbroken containers to prevent bursting from excessive pressure. Self-contained breathing apparatus should be worn for smoke and carbon monoxide. Wear impervious clothing and dike area to prevent runoff if pesticides are also involved. |
| UNUSUAL FIRE AND EXPLOSION HAZARD: | Chemical fire fighting should be done from upwind. Watch your footing; spills or leaks may cause waxy slipperiness. |

## V. REACTIVITY DATA

| | |
|---|---|
| STABILITY: | Stable |
| CONDITIONS TO AVOID: | Not Known at Ambient Temperatures. |
| INCOMPATIBILITY (MATERIALS TO AVOID): | Strong oxidizers or reducers. |
| HAZARDOUS DECOMPOSITION PRODUCTS: | Carbon Dioxide, Carbon Monoxide, steam and smoke under fire conditions. |
| HAZARDOUS POLYMERIZATION: | Will not occur |

## VI. HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: Local irritation may be possible, especially in sensitive individuals. PLYAC is not an eye or primary skin irritant per the Federal Hazardous Substances Labeling Act. Aspiration of undiluted PLYAC may be irritating or promote chemical pneumonitis. Systemic toxic effects are unlikely. Spray mixtures with pesticides should be evaluated in accordance with pesticide toxicity.

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Flush with water for 15 minutes, then get medical attention.

SKIN: Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation persists.

INGESTION: Call a physician immediately. DO NOT induce vomiting.

INHALATION: Remove victim to fresh air. Apply artificial respiration if necessary.

CARCINOGEN STATUS: Not listed by NTP, IARC or ACGIH

NOTE TO PHYSICIAN: Gastric lavage may be indicated for ingestion. Treat symptomatically.

CAUTION: First aid for spray mixtures containing pesticides should be evaluated in accordance with pesticide toxicity.

## VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Watch your footing; spills or leaks may cause waxy slipperiness. Keep away from ignition sources. Confine spill by diking and soak up with absorbent material and place in a container for proper disposal in accordance with all Federal, State and Local Regulations. Flush surfaces clean with water. Keep out of bodies of water and sewer.

WASTE DISPOSAL METHOD: Do not contaminate water, food or feed by storage or disposal. Dispose of in an approved waste disposal facility in accordance with all Federal, State and Local Regulations.

CONTAINER DISPOSAL: Offer metal drums for recycling. Plastic containers may be disposed of in a sanitary landfill or by other procedures approved by the appropriate authorities.

## VIII. SPECIAL PROTECTION INFORMATION

| | | | | |
|---|---|---|---|---|
| RESPIRATORY PROTECTION: | Wear a NIOSH/MSHA approved respirator if necessary. | | | |
| VENTILATION: | LOCAL: | Not Required | SPECIAL: | None |
| | MECHANICAL: | Not Required | OTHER: | None |
| PROTECTIVE GLOVES: | Wear rubber or impervious gloves. | | | |
| EYE PROTECTION: | Wear goggles or a face shield. | | | |
| OTHER PROTECTION: | Full body covering clothing. | | | |

## IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN STORAGE AND HANDLING: Use good hygiene practices. Observe precautions for handling liquid such as container orientation, protection from punctures. Slippery on floors, stairs, step plates and other surfaces. Clean up spills promptly as a good housekeeping practice. Store in a cool dry place. Keep in original container tightly closed. Do not reuse empty container.

OTHER PRECAUTIONS: Keep out of reach of children.

## X. REGULATORY INFORMATION

Components which could require reporting under SARA TITLE III are: None.

| CHEMICAL | % | CAS NUMBER |
|---|---|---|

SARA TITLE III HAZARD CATEGORY

| | | | | | |
|---|---|---|---|---|---|
| IMMEDIATE: | Yes | FIRE: | Yes | REACTIVITY: | No |
| DELAYED: | No | SUDDEN RELEASE OF PRESSURE: | | | No |
| FREIGHT CLASS: | ITEM 102120 | CLASS 60 | | | |
| DOT REGULATION: | Not Regulated | | | | |

Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts. Buyer assumes all risks & liability. He accepts & uses this material on these conditions. He must have a copy of this MSDS where this material is handled.

Date of Issue: 06-22-98

Supersedes: 08-30-91

# APPENDIX F

## Standard Operating Procedures

WASHINGTON STATE DEPARTMENT OF AGRICULTURE

## STANDARD OPERATING PROCEDURES

2001 Gypsy Moth Eradication Project

1. The health and safety of the public, employees of the contractor, and employees of the Washington State Department of Agriculture will be the first concern in implementing the project.

2. Mixing and application of the insecticide will be done only by an appropriately licensed insecticide commercial applicator contractor and will be done only under the supervision of a Washington State Department of Agriculture treatment site monitor.

3. The insecticide will be applied according to label directions.

4. Residents in the affected eradication area will be notified of the projected dates and times of insecticide applications through direct mailings, open house presentations, and press releases. Additionally, a manned 1-800 hotline will be established to address further resident concerns, comments, and project suggestions. Recommendations concerning health and welfare issues will be included in all public outreach efforts.

5. The project will commence at the appropriate stage of leaf and/or larval development.

6. Weather conditions, particularly wind, will play the largest role in determining when an effective application can be made. In the event of rainfall before spray has had sufficient time to adhere to the foliage, a re-spray may be necessary.

7. Work safety and spill control plans have been developed. The plans, together with all appropriate equipment and materials, will be on-site during applications.

# APPENDIX G

## Letters and Permits Received Through Interagency Consultation Concerning Threatened, Endangered, and Sensitive Species and Habitats

January 11, 2001

WASHINGTON STATE DEPARTMENT OF
**Natural Resources**

JENNIFER M. BELCHER
*Commissioner of Public Lands*

Chad Phillips
Department of Agriculture
Laboratory Svcs Div – Entomology Program
3939 Cleveland Ave SE
Olympia WA 98501

**SUBJECT: Gypsy Moth Eradication Project, Vader, Lewis County (T11N R02W S29)**

We've searched the Natural Heritage Information System for information on significant natural features in your project area. Currently, we have no records for rare plants or high quality ecosystems in the vicinity of your project.

The information provided by the Washington Natural Heritage Program is based solely on existing information in the database. In the absence of field inventories, we cannot state whether or not a given site contains high quality ecosystems or rare species; there may be significant natural features in your study area of which we are not aware.

The Washington Natural Heritage Program is responsible for information on the state's endangered, threatened, and sensitive plants as well as high quality ecosystems. We have begun to add information to our database on selected groups of animals of conservation concern, such as freshwater mussels, butterflies and bats. We now make this information available in our reports along with information on rare plants and high quality ecosystems.

The authority for protection of animal species in Washington rests with the Department of Fish and Wildlife who manages and interprets data on wildlife species of concern in the state. To ensure that you receive information on all animal species of concern, please contact Priority Habitats and Species, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia, WA 98501-1091, or by phone (360) 902-2543.

If you have the opportunity, visit our website at http:// www.wa.gov/dnr and click on *Conservation/Protection.* Please call me at (360) 902-1667 if you have any questions.

Sincerely,

Sandy Swope Moody

Sandy Swope Moody, Environmental Coordinator
Washington Natural Heritage Program
PO Box 47014
Olympia WA 98504-7014

State of Washington
**DEPARTMENT OF FISH AND WILDLIFE**

Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

January 16, 2001

Mr. Chad Phillips
Washington State Department of Agriculture
Post Office Box 42560
Olympia, Washington 98504-2560

Dear Mr. Phillips:

In response to your request dated December 4, 2000, we have conducted data retrievals for the proposed Vader Gypsy Moth eradication project located in T11N R2W S29. We found no butterfly species of concern in our records for the immediate proposed Btk application area. The database did contain one species of concern record for the general area; a state candidate species, Whulge or Taylor's checkerspot (*Euphydryas editha taylori*) located in 1983 on Drew's Prairie, approximately 5 miles from the project area. You and I discussed this information by telephone on December 20, and decided to conduct a field visit to the proposed application site in order to evaluate the likelihood of site occupancy by Whulge checkerspot and to review the Btk application plan.

The Whulge checkerspot inhabits gravel outwash prairies and maritime grasslands in western Washington. Historically ranging from the Willamette Valley, Oregon, north to southern Vancouver Island, Canada, this species is currently known to remain on only a handful of sites, primarily in Washington. Two Whulge checkerspot larval food plants have been identified: harsh paintbrush (*Castilleja hispida*) and English plaintain (*Plantago lanceolata*).

We visited the proposed application site on January 3, and examined vegetation and habitat characteristics from vehicle and foot. Within the 29 acre treatment area boundary are several acres of grassy pasture. We walked the perimeter and middle of the grassy areas to more closely evaluate the vegetation and search for plaintain and bunchgrass (*Festuca* spp.) plants. The grassy areas appear to receive fairly heavy use from livestock grazing and haying; horses and horse sign were present and one portion of the field had been mowed, apparently last summer or fall. We did not locate any areas of bunchgrass, species which may indicate remnant native grasslands. We did locate several English plaintain plants, especially along the southwest riparian forest meadow ecotone. The timing of our visit prohibited butterfly or larval surveys as well as detection of harsh paintbrush and many other grassland plant species.

My impression of the site is that it is unlikely to support Whulge checkerspots. The relatively small size, location within an otherwise developed and forested landscape, isolated from other grasslands, combined with year-round livestock use and absence of native bunchgrass, indicate that the area is unlikely to be occupied by Whulge checkerspot. The presence of English plaintain does little to indicate the butterfly's presence as it is an invasive European weed, common in many western Washington backyards. Despite the fact that an extant population in this area cannot be ruled out, I feel there is a very low probability that the proposed 2001 Gypsy Moth eradication effort will effect populations of this butterfly.

I hope this information is helpful. If you have any further questions, please contact me at (360) 902-2496.

Sincerely,

Ann E. Potter

Ann E. Potter, Wildlife Biologist
Wildlife Diversity Division

AEP:tl

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Washington Office
510 Desmond Drive SE, Suite 102
Lacey, Washington 98503
Phone: (360) 753-9440 Fax: (360) 534-9331

COPY FOR YOUR INFORMATION

JAN 1 1 2001

Dear Species List Requester:

You have requested a list of listed and proposed threatened and endangered species, candidate species, and species of concern (Attachment A) that may be present within the area of your proposed project. This response fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (Act). We have also enclosed a copy of the requirements for Federal agency compliance under the Act (Attachment B).

Should the Federal agency determine that a listed species is likely to be affected (adversely or beneficially) by the project, you should request section 7 consultation through this office. If the Federal agency determines that the proposed action is "not likely to adversely affect" a listed species, you should request Service concurrence with that determination through the informal consultation process. Even if there is a "no effect" situation, we would appreciate receiving a copy for our information.

Both listed and proposed species may occur in the vicinity of the project. Therefore, pursuant to the regulations implementing the Act, impacts to both listed and proposed species must be considered by the Federal agency in a biological assessment (BA) (see Attachment B for more information on preparing BAs). Formal conference with the Service is required by the Act if the Federal agency determines that the proposed action is likely to jeopardize the continued existence of a proposed species, or result in the destruction or adverse modification of proposed critical habitat. The results of the BA will determine if conferencing is required. If the species is ultimately listed, your agency may be required to reinitiate consultation.

Species of concern are those species whose conservation standing is of concern to the Service, but for which further status information is still needed. Conservation measures for species of concern are voluntary, but recommended. Protection provided to these species now may preclude possible listing in the future.

There may be other Federally listed species that may occur in the vicinity of your project which are under the jurisdiction of the National Marine Fisheries Service (NMFS). Please contact NMFS at (360) 753-9530 to request a species list.

In addition, please be advised that Federal and state regulations may require permits in areas where wetlands are identified. You should contact the Seattle District of the U.S. Army Corps of Engineers for Federal permit requirements and the Washington State Department of Ecology for State permit requirements.

Your interest in endangered species is appreciated. If you have additional questions regarding your responsibilities under the Act, please contact Yvonne Dettlaff (360) 753-9582 or Bobbi Barrera at (360) 753-6048.

Sincerely,

for

Gerry A. Jackson, Manager
Western Washington Office

Enclosure(s)

cc: WDFW Region 5

**ATTACHMENT A**

**January 09, 2001**

# LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES, CANDIDATE SPECIES AND SPECIES OF CONCERN WHICH MAY OCCUR WITHIN THE VICINITY OF THE PROPOSED GYPSY MOTH ERADICATION PROJECT IN LEWIS COUNTY, WASHINGTON

**(T11N R02W S29)**

**FWS REF: 1-3-01-SP-0454**

## LISTED

Bald eagle (*Haliaeetus leucocephalus*) - wintering bald eagles may occur in the vicinity of the project. Wintering activities occur from October 31 through March 31.

Major concerns that should be addressed in your biological assessment of the project impacts to listed species are:

1. Level of use of the project area by listed species.

2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.

3. Impacts from project construction (i.e., habitat loss, increased noise levels, increased human activity) which may result in disturbance to listed species and/or their avoidance of the project area.

## PROPOSED

Coastal cutthroat trout (*Oncorhynchus clarki clarki*) - may occur in the vicinity of the project.

## CANDIDATE

None.

## SPECIES OF CONCERN

Fringed myotis (bat) (*Myotis thysanodes*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
River lamprey (*Lampetra ayresi*)
Western toad (*Bufo boreas*)

**ATTACHMENT B**

## FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7(a) AND 7(c) OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED

SECTION 7(a) - Consultation/Conference

Requires:

1. Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;

2. Consultation with FWS when a federal action may affect a listed endangered or threatened species to ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the federal agency after it has determined if its action may affect (adversely or beneficially) a listed species; and

3. Conference with FWS when a federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or an adverse modification of proposed critical habitat.

SECTION 7(c) - Biological Assessment for Construction Projects *

Requires federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify any proposed and/or listed species which is/are likely to be affected by a construction project. The process is initiated by a federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, please verify the accuracy of the list with the Service. No irreversible commitment of resources is to be made during the BA process which would result in violation of the requirements under Section 7(a) of the Act. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an onsite inspection of the area to be affected by the proposal, which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within the FWS, National Marine Fisheries Service, state conservation department, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures; and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. Upon completion, the report should be forwarded to our Endangered Species Division, 510 Desmond Drive SE, Suite 102, Lacey, WA 98503-1273.

*

"Construction project" means any major federal action which significantly affects the quality of the human environment (requiring an EIS), designed primarily to result in the building or erection of human-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes federal action such as permits, grants, licenses, or other forms of federal authorization or approval which may result in construction.

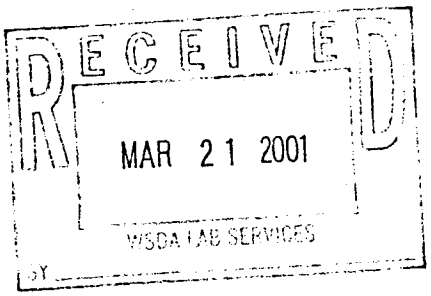
# APPENDIX H

## Other Letters received

WASHINGTON STATE DEPARTMENT OF
**Natural Resources**

DOUG SUTHERLAND
*Commissioner of Public Lands*

March 20, 2001




Mr. Chad Phillips
Washington State Department of Agriculture
PO Box 42560
Olympia, WA 98504-2560

Dear Mr. Phillips:

As Washington's Forest Entomologist, employed by the Washington Department of Natural Resources, I am familiar with gypsy moth and B.t. issues. I have read the "Cooperative Gypsy Moth Eradication Project Lewis County, Washington March 6, 2001 Draft Environmental Assessment" and wish to comment.

Gypsy moth (*Lymantria dispar*) has the potential to cause significant problems for Washington. The plants fed upon by gypsy moths include maple, alder, cottonwood, white oak and numerous agricultural and horticultural species. Mature European gypsy moth caterpillars can eat conifer foliage. High numbers of caterpillars disturb many people and may affect their skin and lungs with poisonous hairs. Gypsy moths damage native ecosystems, reduce water quality, stimulate increased use of pesticides, and cause trade barriers. It is important that strong effort be made to rapidly and accurately detect any introductions of gypsy moth which occur in Washington and eradicate them when possible.

Seventy-six gypsy moths and 6 egg masses were detected at this site in 2000. This population is adequately established to persist and spread to surrounding areas. If the treatment area has been located to sufficiently include all extant gypsy moth egg masses, three applications of B.t.k. (*Bacillius thuringiensis* var. *kurstaki*) are likely to successfully eradicate the population. Intense follow-up trapping in, at minimum, summer 2001 and 2002 will monitor the success of the eradication effort.

The eradication procedures and activities outlined in the Draft EA appear to adequately minimize the risk of negative effects of B.t.k. application to humans, wildlife and water quality. B.t.k. is not toxic to humans, mammals, birds, or fish. There are not likely to be endangered species in the area. Residents and visitors to treatment areas will be notified so they can reasonably avoid the B.t.k. Safety plans and procedures have been developed to minimize likelihood and consequences of spills or accidents.

I am confident that, if implemented as stated in the EA, this project has high likelihood of successfully eradicating this population of gypsy moths without causing harm to the residents or environment of the treatment area and surrounding vicinity. Without such a project, Washington is definitely at risk of significant negative consequences associated with gypsy moths.

Sincerely,

Karen Ripley
Forest Entomologist

# APPENDIX I

## Finding of No Significant Impact

Finding of No Significant Impact
for
LEWIS COUNTY, WASHINGTON

2001 APHIS Cooperative Gypsy Moth Eradication Program
Site-Specific Environmental Assessment

The United States Department of Agriculture, (USDA), in cooperation with the Washington State Department of Agriculture, (WSDA), is proposing an eradication program with the goal of eliminating an isolated infestation and/or introduction of the non-native Gypsy Moth, *Lymantria dispar*, (Linnaeus), in Lewis County, Washington during the spring of 2001. Under the process described in the National Environment Policy Act, 1969 (NEPA), an Environmental Assessment (EA) was prepared to analyze the effect of the proposed action at the site-specific level. The environmental consequences of this program are analyzed in this EA, which is supported by and tiered to the "Gypsy Moth Management in the United States: *a cooperative approach*, Final Environmental Impact Statement, November 1995", (FEIS). The USDA examined the six alternatives available in the FEIS and has selected the preferred Alternative 6, which consists of suppression, eradication, and slow the spread. Under alternative 6, several treatment options are available for Gypsy Moth management. The treatment options analyzed included:

1) No action
2) *Bacillus thuringiensis* var. *kurstaki* (Btk); a biological insecticide
3) Diflubenzuron; a chemical insecticide
4) Gypsy Moth nucleopolyhedrosis virus (NPV) or Gypchek; a biological insecticide
5) Mass trapping, Gypsy Moth traps with disparlure to attract male Gypsy Moths
6) Mating disruption, aerial application of disparlure
7) Sterile insect release, release of sterile or partially-sterile Gypsy Moth life stages

The potential environment impacts and mitigation measures of these treatment options are described in the FEIS and EA. The EA was prepared by the USDA and WSDA. The FEIS and EA are available for review at the following locations:

USDA-APHIS-PPQ
Office of the State Plant Health Director
22000 Marine View Drive, Suite 201
Des Moines, WA 98198

Washington State Library
Capitol Campus
16th Avenue & Water Street
Olympia, WA 98504

USDA-APHIS-PPQ
APHIS Library, 1st floor
4700 River Road
Riverdale, MD 20737

A cooperative USDA/WSDA eradication project is selected. This cooperative program selects the preferred Alternative 6: specifically eradication, due to the geographic location of Washington State. The USDA / WSDA Gypsy Moth eradication strategy proposed for 2001 includes utilizing three applications of the biological insecticide, *Bacillus thuringiensis* var. *kurstaki, (Btk),* at the rate of 24 billion international units, (BIU), per acre applied to all foliage utilizing ground based application equipment. A forth application may be made if substantial rainfall occurs to soon following completion of an application. The insecticide may be mixed with the spreader-sticker Plyac. All applications will be followed by intensive trapping, inspections for egg masses, and removal of egg masses where found.

All of the comments on the Draft EA have been reviewed. The issues raised in the comments are addressed in the FEIS and the EA. For more information on specifics having to do with implementation of this program, please refer to the site specific 2001 EA. Implementation of this program, with associated operating procedures and mitigation measures as identified in the EA, would ensure that no significant adverse environmental impact would occur to the human environment.

Reasons for the finding of no significant impact include:

A. B.t.k. used as described in this Environmental Assessment presents minimal risk of significant impact on human health.
B. It is not anticipated that any non-target animal or plant populations would be adversely affected due to the limited size of the treatment areas. Any detrimental effects on susceptible non-target organisms would be transient and these populations would recover as individuals from nearby untreated areas re-colonized the treatment areas.
C. Endangered, threatened, and sensitive species identified in the EA would not be affected by this eradication project, due to the implementation of protective measures as indicated in the EA.
D. No detrimental effects on vegetation, water, or soil are known or anticipated due to this eradication project.
E. No cumulative effects are known or anticipated.

This EA is consistent with Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." That implementation of this cooperative USDA/WSDA eradication project will not result in disproportionately high and adverse human health or environmental effects on any minority populations and low-income populations. As required by the Executive Order of the President, opportunities for full participation in the NEPA process by such populations have been provided.

Barbara A. Chambers

Barbara A. Chambers
State Plant Health Director- WA State
United States Department of Agriculture
Animal & Plant Health Inspection Service
Plant Protection and Quarantine

04/14/01

Date